



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200
Fax 613 632-5246

D350-748-201
Job Sheet 184480



POSITIVE RECALL

EFFECTIVE 10/10/18 **AUTH** JP

RELEASED _____ **DATE** _____

Eng approval Required.

Part No: D350-748-201

Job Qty: 1 ea

Part Name: Aft Crosstube AS350 / AS355



Part Weight: 0 lbs

Status: New

Job Created: 10/10/18

Job Tracking No:

Due Date: 10/12/18

Created By: Jesse White

Type: SOLD

Description:

Note: DWG REV H IPP Rev: A New Issue 06-07-05 JLM IPP Rev: B Update qty of MS21042L5 06-09-12 KJ IPP Rev C Combined manufacturing 08.04.02 EC verified: DD IPP Rev: D 08-06-24 revD as per dwg DD verified: EC IPP Rev: E 08.12.11 Step 17 was step 21 KJ Verified: EC IPP Rev: F 10.08.04 added QSI010 4.3 DD verf: EC IPP REV: G ADD UNDER BEND COMMENT 12-05-28 JLM IPP REV: H 12.11.05 as per dwg D350-748-141G DD verf: JLM IPP REV: I 15.03.19 as per dwg D350-748-241revH dd verf: jlm

Ship Via:

Bill of Materials



Hawkesbury, ON K6A 1K7
CANADA
TEL.: 1 613 632-5200
Email: sales@dartaero.com
www.dartaerospace.com

Container No: S117528



Part: D350-748-201

Job No: 184480

Serial No/Batch: S117528

Revision:

Inspector:

Exp Date:

Instructions: TC STC SH06-27 Issue 2, FAA STC SR02359NY 11/03/04, EASA S

*Eng test
RD18-748-01
UP 10/11/30*

SCRAP

P.T.O.

Fax 11/10/18 12:55 PM dart white.jesse

POSITIVE RECALL
EFFECTIVE AUTH
RELEASED DATE

P.T.O.

Job Routing

Op No	Operation	Qty	Start Date	Due Date	Standard		Workcenter/Supplier		Sign-off
					Setup hrs	Run Hrs	Workcenter / Supplier	Lead Time	
90	Start up Operation	1 Ea	10/12/18	10/12/18	0.00	0.00	Start Up Crosstubes-1		DPZ
110	CNC Bend Crosstubes	1 pcs	10/12/18	10/12/18	0.00	2.94	CNC Bend Crosstube		DPZ
120	Crosstubes	1 pcs	10/12/18	10/12/18	0.00	2.65	Crosstubes-2		DPZ
125	Outsource	1 pcs	10/12/18	10/12/18			MEI001-VC	8	DPZ
126	Packaging	1 pcs	10/12/18	10/12/18	0.00	0.00	Packaging2		DPZ
127	QC	1 pcs	10/12/18	10/12/18	0.00	0.00	QC15		DPZ
128	Crosstubes	1 pcs	10/12/18	10/12/18	0.00	2.65	Crosstubes-2		DPZ
130	Crosstubes	1 pcs	10/12/18	10/12/18	0.00	1.85	Crosstubes-2		DPZ
140	QC	1 pcs	10/12/18	10/12/18	0.00	0.00	QC6		DPZ
150	Outsource	1 pcs	10/12/18	10/12/18			CAD002-VC	8	DPZ
160	Packaging	1 pcs	10/12/18	10/12/18	0.00	0.00	Packaging2		DPZ
170	QC	1 pcs	10/12/18	10/12/18	0.00	0.00	QC6		DPZ
174	Outsource	1 pcs	10/12/18	10/12/18			SKY002-VC	5	DPZ
176	Packaging	1 pcs	10/12/18	10/12/18	0.00	0.00	Packaging2		DPZ
178	QC	1 pcs	10/12/18	10/12/18	0.00	0.00	QC5		DPZ
180	SprayPaint	1 pcs	10/12/18	10/12/18	0.00	0.88	Spray Paint		N/A - Eng test
190	QC	1 pcs	10/12/18	10/12/18	0.00	0.00	QC14		DPZ
200	Crosstubes	1 pcs	10/12/18	10/12/18	0.00	1.85	Crosstubes-2		DPZ
210	QC	1 pcs	10/12/18	10/12/18	0.00	0.00	QC5		DPZ
220	Packaging	1 pcs	10/12/18	10/12/18	0.00	0.00	Packaging1-3		DPZ
230	QC	1 pcs	10/12/18	10/12/18	0.00	0.00	QC4		DPZ
240	Packaging	1 pcs	10/12/18	10/12/18	0.00	0.00	Packaging3-1		DPZ
245	DC	1 pcs	10/12/18	10/12/18	0.00	0.00	DC		DPZ
250	QC21-FG	1 Ea	10/12/18	10/12/18	0.00	0.00	QC21		DPZ

Part Op 110 - Bend tube as per Dwg D350-748-241 using CNC bender program D350A and Folio FT _____ *****UNDER BEND
 Descriptions: .225" PER SIDE*****

120 - ****VERIFY CROSSTUBE DIMENSIONS AS PER DWG****

125 - ISSUE P/O TO METCOR: 41328 AFTER BENDING: STRESS RELIEF AT 650° F ± 25° F FOR A MINIMUM OF 2 HRS AIR COOL TO AMBIENT TEMPERATURE note: crosstube made from 4130 seamless steel tube DETAIL C OF C REQUIRED

127 - ***MARK CUT LINES***

128 - CUT TUBE AT HEIGHT ON FAI SHEET

130 - 2- Drill Tube as per Dwg D350-748-241 Using DT8876 Drill Jigs, 3 -Deburr 4- Engrave Part # and Batch # as per Dwg D350-748-241 5-Remove all marks from tube within limits of D350-748-241

150 - Issue P/O: 41374 Stress relief at 375degree for 5hrs Magnetic Particle Inspect per ASTM E1444 Cad Plate per AMS-QQ-P-416B, Class 1, Type 2 Embrittle relief at 375 degree for 8 hrs, Chromate Treat C of C req'd

160 - Ensure certificate of conformity is attached

174 - ISSUE P/O TO SKYSERVICE: 00041435

180 - 1-Prime inside and out crosstube as per QSI 005 4.2

190 - Then,Wrap in plastic bag to protect from scratches

200 - INSTALL GROUND WIRE INSERT, THEN INSERT SCREW AND WASHER 2-Install supports with Proseal 890 per D350-748-241 and QSI 015 EXP: _____ 3-Install supports clamps Using Dt8876 as per Dwg D350-748-241,Torque to 60-80 IN-LBS.

240 - Identify and pack for shipping as per PPPD350-748-201 PPP Rev: _____

245 - Photocopy bluefile & type labels per PPPD350-748-201 CHG003

USED FOR
ENG TEST

RD18-748-01

4/18/10/30

100

100

100

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POSITIVE
RECALL

POSITIVE
RECALL

Job BOM

Part / Item	Component Name	Quantity	Operation	Container
D350-748-241TRN	Crosstube Turning Detail	1 Ea (1 ea)	90-Start up Operation	5104 077
ALS4-1032-225	Rivnut	1 Ea (1 ea)	200-Crosstubes	
D3502-1	Support	2 Ea (2 ea)	200-Crosstubes	
D5123-7	Clamp Cushion	2 Ea (2 ea)	200-Crosstubes	
MS21920-20	Clamp	2 Ea (2 ea)	200-Crosstubes	
MS27039-1-10	Screw	1 Ea (1 ea)	200-Crosstubes	
NAS1149D0363J	Washer	1 Ea (1 ea)	200-Crosstubes	
AN4-41A	Bolt	8 Ea (8 ea)	220-Packaging	
AN4-6A	Bolt	16 Ea (16 ea)	220-Packaging	
AN5-32A	Bolt	4 Ea (4 ea)	220-Packaging	
D3500-1	Saddle	4 Ea (4 ea)	220-Packaging	
D3501-1	Bushing	16 Ea (16 ea)	220-Packaging	
MS21042L4	Nut	24 Ea (24 ea)	220-Packaging	
MS21042L5	Nut	4 Ea (4 ea)	220-Packaging	
NAS1149D0463J	Washer	32 Ea (32 ea)	220-Packaging	
NAS1149D0563J	Washer	8 Ea (8 ea)	220-Packaging	

Job Allocations

Operation	Component Part	Required	Inventory	Allocated
90-Start up Operation	D350-748-241TRN	1	5	0
	ALS4-1032-225	1	1,843	0
200-Crosstubes	D3502-1	2	38	0
	D5123-7	2	301	0
	MS21920-20	2	200	0
	MS27039-1-10	1	204	0
	NAS1149D0363J	1	1,829	0
	AN4-41A	8	567	0
220-Packaging	AN4-6A	16	1,198	0
	AN5-32A	4	354	0
	D3500-1	4	103	0
	D3501-1	16	547	0
	MS21042L4	24	4,639	0
	MS21042L5	4	733	0
	NAS1149D0463J	32	5,614	0
	NAS1149D0563J	8	1,414	0

Part Specifications

Specifications could not be found.

Plex 10/10/18 12:55 PM dart.white.jesse

FFO 40.2

Item	Qty -241	Part Number	Description
1	X	D350-748-241	CROSSTUBE ASSEMBLY (AS 350/355 HI AFT)
2	1	D6015-125	CROSSTUBE (OR D6018-125)
3	2	D3502-1	SUPPORT
4	2	D5123-7	CLAMP CUSHION
5	1	AELS-1032-225	INSERT
6	1	NAS1149D0363J	WASHER (OR AN960JD10)
7	2	MS21920-20	CLAMP (OR MS21920-21/-22, PER DART SPEC. M-MS21920-21/-22)
8	1	MS27039-1-10	SCREW
9	A/R	PROSEAL 890 B-2	SEALANT, AMS-S-8802 CLASS B-2

GENERAL NOTES:

- 1) MATERIAL: MANUFACTURED FROM D6015-125 OR D6018-125
FINISHED LENGTH AFTER TURNING = 124.70±0.06 (AFTER BENDING/TRIMMING = 122.70 REF)
- 2) FINISH: MAGNETIC PARTICLE INSPECT PER DART QSI 038 4.2
CADMIUM PLATE PER AMS-QQ-P-416B, CLASS 1, TYPE II
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART QSI 005 4.2
- 3) TOLERANCE: PER DART QSI 018 UNLESS OTHERWISE NOTED.
WALL THICKNESS ECCENTRICITY PER DART QSI 038 7.2
MIN. ALLOWABLE WALL IS -0.020 FROM NOMINAL
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- 6) IDENTIFICATION: DART PART NUMBER "D350-748-241" AND BATCH NUMBER ON INSIDE OF CUFF
PER DART QSI 044 6.4 (VIBRATING STYLUS)
- 7) WEIGHT: 29.85 lbs
- 8) PART IS SYMMETRIC ABOUT CENTERLINE, EXCEPT FOR Ø0.297 HOLE.
- 9) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE. WHEN DRILLING HOLES EXTREME CARE MUST BE TAKEN AND CAREFUL DEBURRING PERFORMED TO ENSURE A CLEAN HOLE WITH NO CRACKING/CHIPPING/GROOVES.

TURNING

- 10) BLEND OUT ALL EDGES FROM MACHINING LONGITUDINALLY, TRANSITION SHOULD BE SMOOTH. NOTE: ALL HOLES ARE DRILLED AFTER BENDING.
- 11) HEAT TREAT TO MIN. 180 KSI PER MIL-T-6736 OR AMS2759/1E AFTER TURNING. ACCEPTABLE TO VERIFY TENSILE STRENGTH BY HARDNESS TEST PER ASTM E18 TO 40-45 HRC.

BENDING

- 12) ALL DIMENSIONS FOR BENT TUBE ARE POST STRESS RELIEF
- 13) BEND PROGRESSIVELY WITH A MINIMUM OF 7 PASSES PER SIDE. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D. ON TOP HALF OF BEND, AND 8% ON BOTTOM HALF OF BEND.
- 14) MAX AMPLITUDE OF RIPPING ALONG BENT PORTION OF THE TUBE IS 0.030 (ZN A1-3)
- 15) AFTER BENDING, STRESS RELIEVE TUBE AT 650°F ±0.25°F FOR A MINIMUM OF 2 HRS AND ALLOW TO COOL TO AMBIENT TEMPERATURE (REF AMS2759/1E).
- 16) MAX TWIST AFTER STRESS RELIEF: WITH XTUBE LAYED FLAT ON SURFACE, THE DIFFERENCE BETWEEN CUFF HEIGHTS FROM THE SURFACE MAY BE NO LARGER THAN 0.38 (ZN C1-3).

ASSEMBLY

- 17) TO INSTALL D3502-1 SUPPORT: ABRABE MATING SURFACE OF SUPPORT AND CROSSTUBE WITH 180-GRIT SANDPAPER AND REMOVE RESIDUE WITH MEK (OR EQUIVALENT). APPLY A 0.02" TO 0.05" THICK LAYER OF PROSEAL 890 CLASS B-2 (OR AMS-S-8802 CLASS B-2) SEALANT TO MATING SURFACE OF SUPPORT.
- 18) TORQUE CLAMPS 60 TO 80 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING. PRIOR TO PACKAGING, RE-CHECK TORQUE ON CLAMPS AFTER PROSEAL 890 SEALANT HAS CURED FOR 72 HOURS.

RELEASED

2015 MAR 18

47 ECU 15-547

H	D5123-7 WAS D3595-063-396, MS21920-20 WAS -22, ALLOWABLE CRUSHING NOW 8% WAS 7%, 14.00 WAS 14.37 (D5-2), 12.32 WAS 12.69 (D5-3)	CP	15.02.25
G	RMV ABRASION STRIP, SUPPORT NOW W/ PROSEAL & CUSHION, ADD STRESS RELIEF, LONGER CUFF, NOW TRIM'D AFTER BEND, ADD WALL DIMS & UPDATE TOL	CP	12.09.12
F	ADD HRC TEST OPTION (B8-1) PER PAR 08-040, ADD TWIST LIMIT (A8-1, C1-3), ADD D6015-125 OPTION (C8-1), STOCK DIM NOW MACHINED (D1-4)	CP	10.11.23
E	REVISE GENERAL NOTES; UPDATE TO CURRENT STANDARDS; RELOCATED FLAG #6 PER PAR 08-046 (ZN A8-3); ADD TOLERANCES (ZN C6-3, D2-3)	RF	09.09.30
D	MAG. PARTICLE AND CAD PLATE AS MFD.	CP	06.10.31
C	ADD CAD PLATING	CP	06.08.14
B	ADD D6018-125 & PRIME AND PAINT	CP	06.06.30
A	NEW ISSUE	CP	06.03.31
REV.	DESCRIPTION	BY	DATE
DESIGN			
DRAWN			
CHECKED			
MFG. APPR.			
APPROVED			
DE APPR.			
DATE	15.02.25		

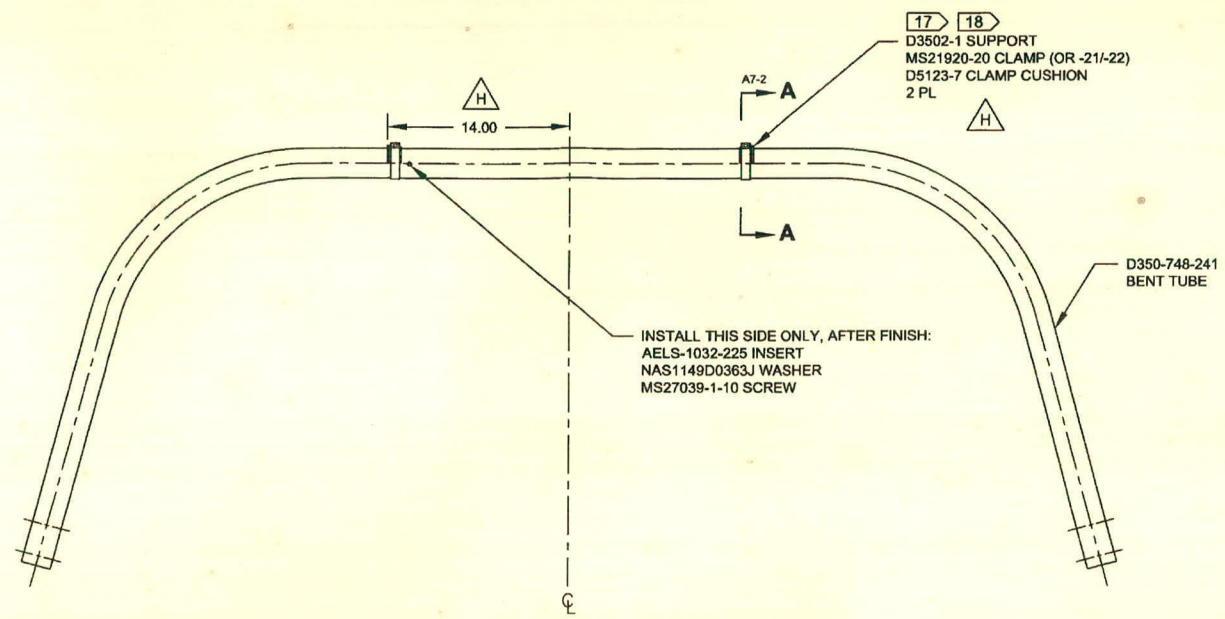
DART AEROSPACE LTD
HAWKESBURY, ONTARIO, CANADA

DRAWING NO. REV. H
D350-748-241 SHEET 1 OF 4
TITLE SCALE
CROSSTUBE (AS 350/355 HI AFT) NTS

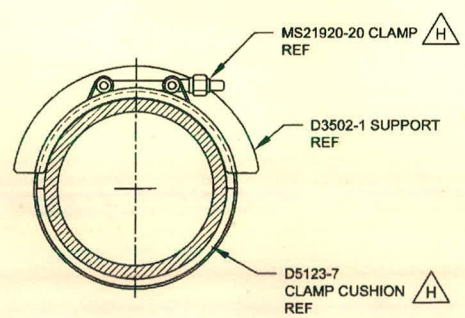
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8 7 6 5 4 3 2 1

D
C
B
A



**D350-748-241
ASSEMBLY DETAIL**

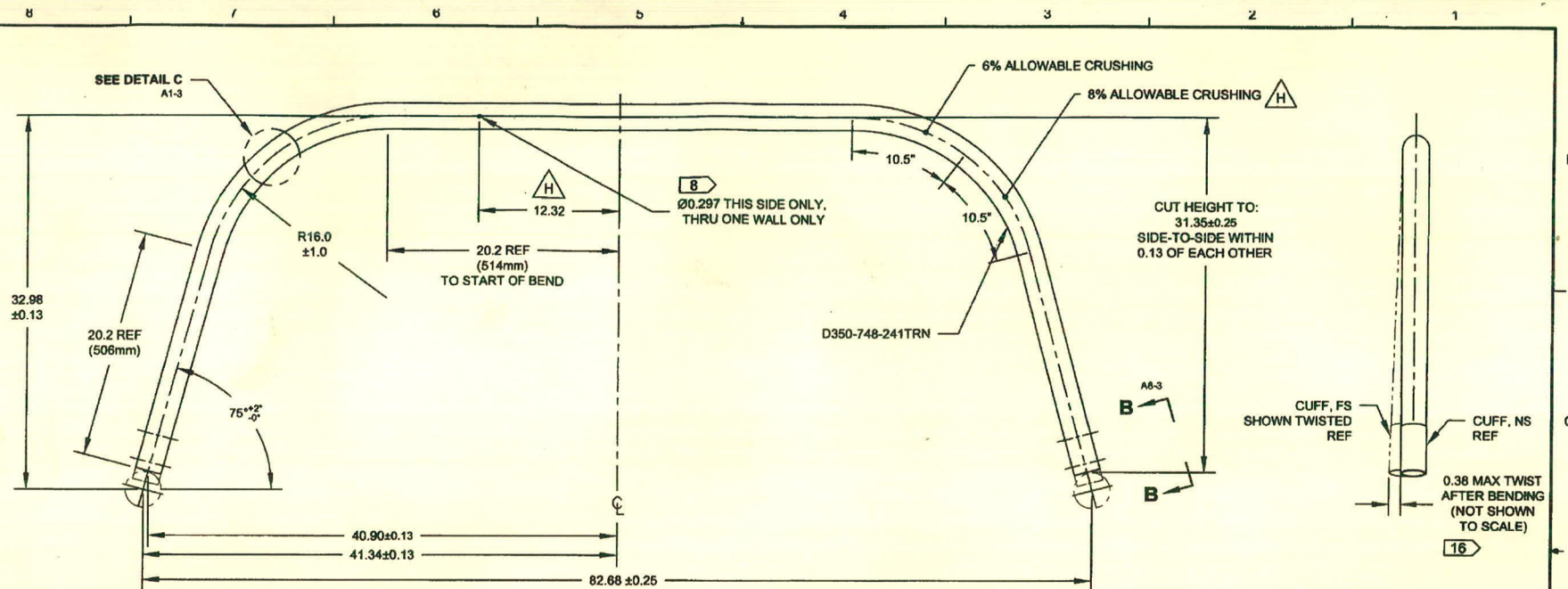


SECTION A-A D4-2
SCALE 6X

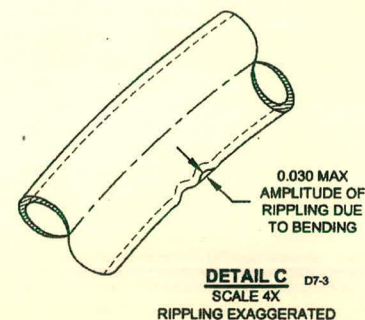
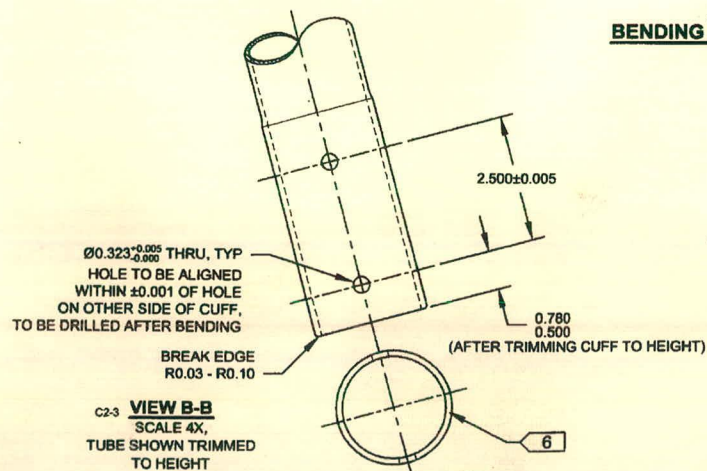
RELEASED
2015 MAR 18

DESIGN	90	DART AEROSPACE LTD	
DRAWN	90	HAWKESBURY, ONTARIO, CANADA	
CHECKED	ALS	DRAWING NO.	REV. H
MFG. APPR.		D350-748-241	SHEET 2 OF 4
APPROVED		TITLE	SCALE
DE APPR.		CROSSTUBE (AS 350/355 HI AFT)	NTS
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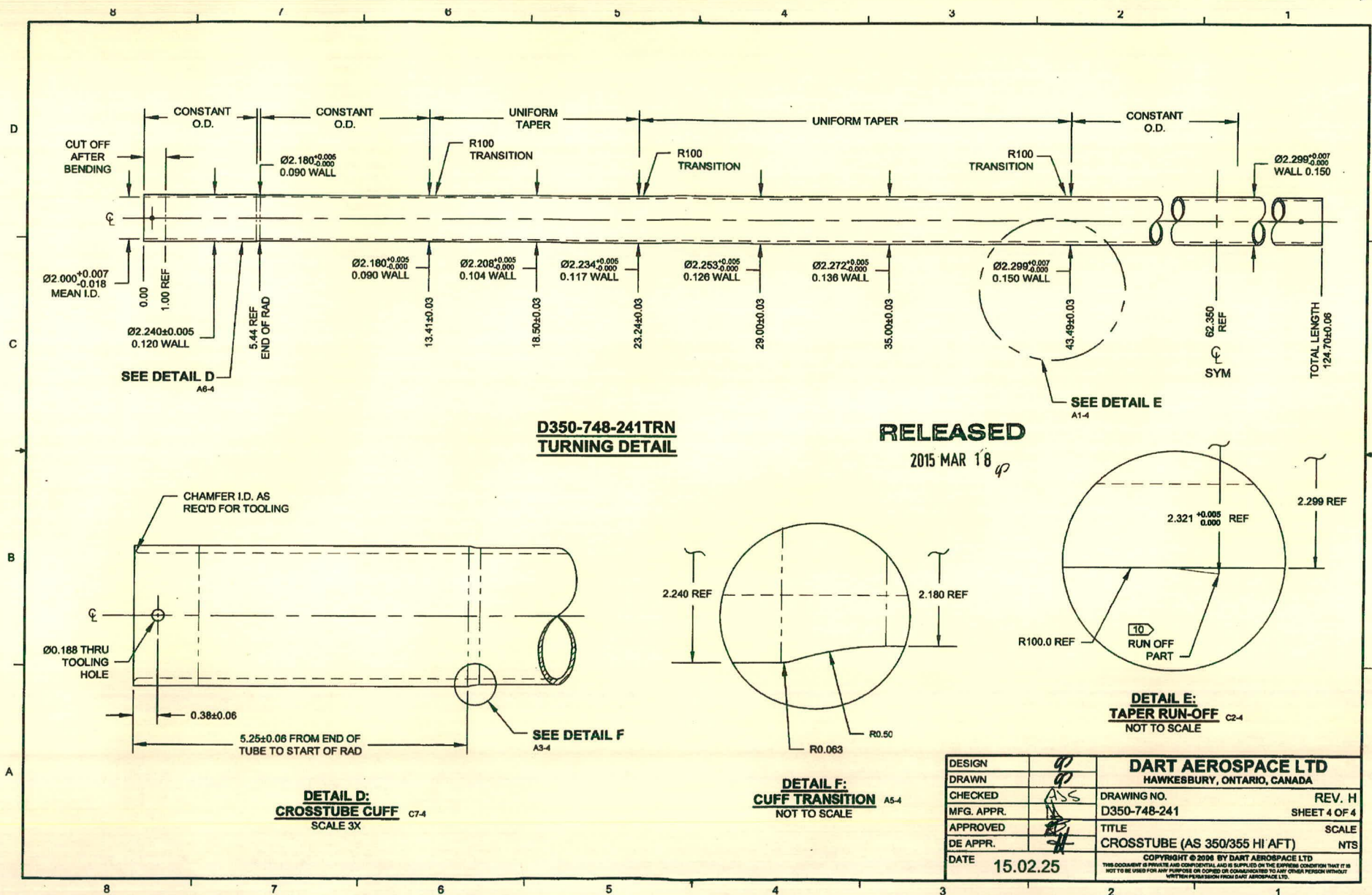


D350-748-241
BENDING AND DRILLING DETAIL 10



RELEASED
2015 MAR 18

DESIGN	90	DART AEROSPACE LTD	
DRAWN	90	HAWKESBURY, ONTARIO, CANADA	
CHECKED	ASS	DRAWING NO.	REV. H
MFG. APPR.	90	D350-748-241	SHEET 3 OF 4
APPROVED	90	TITLE	SCALE
DE APPR.	90	CROSSTUBE (AS 350/355 HI AFT)	NTS
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**D350-748-241TRN
TURNING DETAIL**

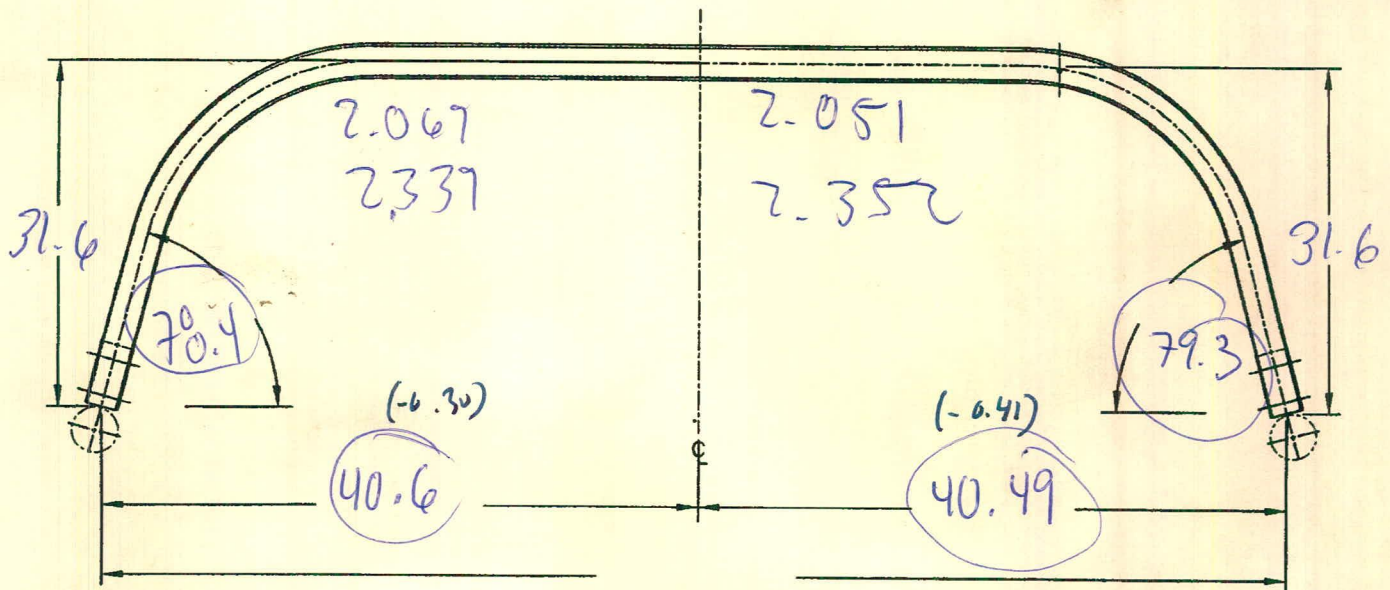
RELEASED

2015 MAR 18

DESIGN		DART AEROSPACE LTD	
DRAWN		HAWKESBURY, ONTARIO, CANADA	
CHECKED		DRAWING NO.	REV. H
MFG. APPR.		D350-748-241	SHEET 4 OF 4
APPROVED		TITLE	SCALE
DE APPR.		CROSSTUBE (AS 350/355 HI AFT)	NTS
DATE	15.02.25	COPYRIGHT © 2006 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSES OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	

DART AEROSPACE LTD		Work Order:	
Description: Crosstube High Aft (AS350/355)		Part Number:	D350-748-201
Inspection Dwg: D350-748-241 Rev: H		Page 1 of 1	

Required Dimension	Min	Max
Height	31.10	31.60
1/2 Span	40.77	41.03
Angle	75	77
Total Span	81.54	82.06
Bending Passes	7	--
Crushing	--	8%
Twist	--	0.38



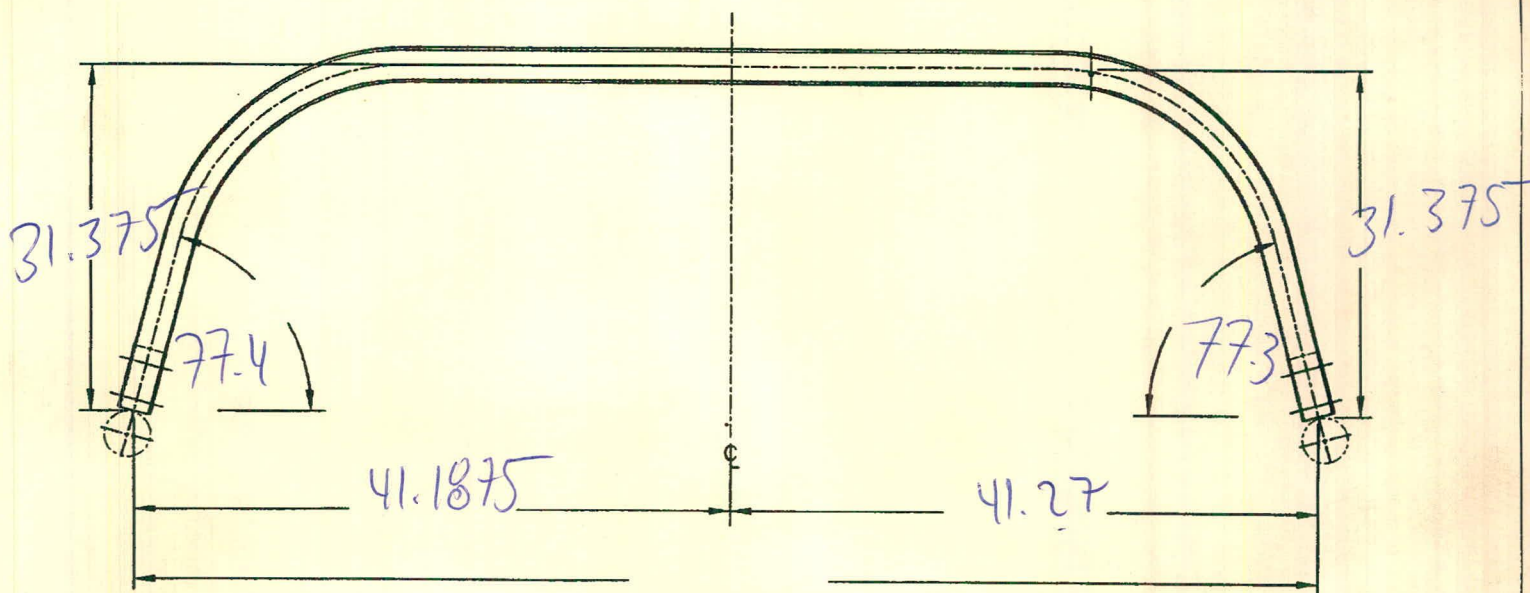
	Side A	Side B
Bending Passes		
Crushing	6.1%	6.8%
Comments		

QC15 Inspection	
Date	

Rev	Date	Change	Revised by	Approved
A	07.02.06	New Issue	KJ/JM	
B	10.08.23	Dwg Rev updated	KJ	
C	12.04.16	Added bending, crushing & twist dimensions	KJ	
D	12.07.31	Dwg Rev updated	KJ	
E	13.02.27	Dwg Rev updated	KJ	
F	14.02.13	Crushing & twist dimensions revised	KJ	
G	14.11.10	Height dimension revised	KJ	
H	15.07.20	Crushing dimension revised	KJ	

DART AEROSPACE LTD		Work Order:	
Description: Crosstube High Aft (AS350/355)		Part Number:	D350-748-201
Inspection Dwg: D350-748-241 Rev: H			Page 1 of 1

Required Dimension	Min	Max
Height	31.10	31.60
1/2 Span	40.77	41.03
Angle	75	77
Total Span	81.54	82.06
Bending Passes	7	--
Crushing	--	8%
Twist	--	0.38



	Side A	Side B
Bending Passes		
Crushing		
Comments		

QC15 Inspection	
Date	

Rev	Date	Change	Revised by	Approved
A	07.02.06	New Issue	KJ/JM	
B	10.08.23	Dwg Rev updated	KJ	
C	12.04.16	Added bending, crushing & twist dimensions	KJ	
D	12.07.31	Dwg Rev updated	KJ	
E	13.02.27	Dwg Rev updated	KJ	
F	14.02.13	Crushing & twist dimensions revised	KJ	
G	14.11.10	Height dimension revised	KJ	
H	15.07.20	Crushing dimension revised	KJ	



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

PURCHASE ORDER **PO041328**

Supplier: MEI001-VC
Metcor Inc.
560 Boul. Arthur Sauve
Saint-Eustache
QC
J7R 5A8 Canada
Phone: 450 473 1884
Fax: 450 491 5498

PO No: PO041328

PO Date: 10/11/18

Due Date: 10/12/18

**Purchase Order
Revision:**

Revision Date:

Ship-To Contact: Lavoie, Chantal
Phone: clavoie@dartaero.com

E-MAILED

OCT 11 2018

Ship To: 1270 Aberdeen Street
Hawkesbury
ON
K6A 1K7 Canada
Phone: 613-632-5200

Via: Ground

Pynt Terms: Net 30

Freight Terms:

Special Comments:

Items

Line Item	Job	Part	Description	Status	Account	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (CAD)	Extended Price
1	184483	D350-748-201	Aft Crosstube AS350 / AS355 : TC STC SH06-27 Issue 2, FAA STC SR02359NY 11/03/04, EASA STC EASA.10016903 Revision 2 10/09/03, BRAZIL 2009S04- 04 09/04/06 ISSUE P/O TO METCOR: AFTER BENDING: STRESS RELIEF AT 650° F ± 25° F FOR A MINIMUM OF 2 HRS AIR COOL TO AMBIENT TEMPERATURE note: crosstube made from 4130 seamless steel tube DETAIL C OF C REQUIRED	Firmed	-	10/12/18	1 pcs	0 pcs	1 pcs	\$205.00/pcs	\$205.00
	184480			Firmed	-	10/12/18	1 pcs	0 pcs	1 pcs	\$205.00/pcs	\$205.00
Sub Total:							2	0	2		\$410.00
Grand Total:											\$410.00

DAS
38
9-89



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

PURCHASE ORDER PO041328

Order Notes

Procurement Quality Clauses

A005 right of entry
A012 chemical and physical test report
A016 personnel qualification
A017 raw material identification (as applicable)

A022 Apical Processing
A024 process certifications
A026 certification of material conformance

A041 quality management system
A042 dart notification by supplier
A043 retention of quality documents

A048 counterfeit parts avoidance, detection, mitigation and disposition program

A049 supplier awareness

Terms & Condition of Purchasing(Suppliers) and Procurement Quality Clauses are an integral part of our AS9100 requirements. To learn in detail, please visit www.dartaerospace.com for further explanation.

Plex 10/11/18 2:59 PM dart.lavoie.chantal

METCOR INC.

560 BOUL. ARTHUR-SAUVÉ
ST-EUSTACHE, QC J7R 5A8
Tel: 450-473-1884 / Fax: 450-491-5498

Reçu de livraison

Delivery Receipt

BON DE TRAVAIL Order	EXPÉDITEUR Shipper ID	BON D'EXPÉDITION Shipper
331089	1	131578

EXPÉDITION COMPLÈTE / Shipped Complete

CLIENT /Customer 215

DART AEROSPACE
1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
Ph: 613-632-5200
Fax: 613-632-1053



LIVRÉ À /Shipped To

DART AEROSPACE
1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
Ph: 613-632-5200
Fax: 613-632-1053

COMMANDE DU CLIENT Customer PO	BON DE LIVRAISON DU CLIENT Customer Shipper No.	TYPE DE MATÉRIEL Material Type	DATE DE LA COMMANDE Order Date	TRANSPORTEUR Carrier
41328 ✓		Steel	2018/10/11	client

QUANTITÉ Quantity	No. PIÈCE / Part No.	NOM DE LA PIÈCE / Part Name	DESCRIPTION DE LA PIÈCE Part Description	POIDS Weight
2	D350-748-201			62,
	(2) D350-748-201	JOB 184480		
	1 NIL			

TYPE DE CONTENEUR Container Type	# DE CONTENEURS # Of Containers	COMMENTAIRES CONTENEUR Container Comments
NIL	1	

EMPAQUETAGE Packing	
------------------------	--

QUANTITÉ EXPÉDIÉE / Quantity Shipped : 2
POIDS EXPÉDIÉ / Weight Shipped : 62,00
QUANTITÉ RESTANTE / Quantity Remaining : 0
POIDS RESTANT / Weight Remaining : 0,00

APPROUVE

Signature:

Date:

QUANTITÉ EXPÉDIÉE / Quantity Shipped:	2
POIDS EXPÉDIÉ / Weight Shipped :	62,00

METCOR INC.

560 BOUL. ARTHUR-SAUVÉ, ST-EUSTACHE, QC, J7R 5A8

Tél.: 450-473-1884

Télécopieur / Fax administration: 450-491-5498

Télécopieur / Fax production: 450 491-6454

Certificat de Conformité Certificate of Compliance

BON DE TRAVAIL order	CHARGEMENT load
331089	1

CLIENT / customer 215

DART AEROSPACE

1270 ABERDEEN

HAWKESBURY

ON K6A 1K7

LIVRÉ À / shipped to:

DART AEROSPACE

1270 ABERDEEN

HAWKESBURY

ON K6A 1K7

COMMANDE DU CLIENT customer po	CLASSIFICATION PIECE part classification	MATÉRIEL material	MAÎTRE D'OEUVRE prime contractor	PROGRAM
41328	N/A	Steel		

SPÉCIFICATIONS DU PROCÉDÉ processing specifications

STRESS REL

SAE AMS 2768/1 REV.F

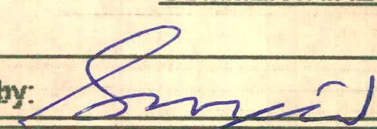
EXIGENCE / requirement SPÉCIFICATIONS / specified TESTS EXÉCUTÉS / performed RÉSULTATS DE TESTS / results
Visual

QUANTITÉ quantity	POIDS weight	DESCRIPTION DES PIÈCES parts description
2	62	D350-748-201 (2) D350-748-201 JOB 184480 1 NIL

12/10/18

COMMENTAIRES / comments

APPROUVÉ par / Approved by:



DATE: 2018-10-12

DAS
38
9-89

APPROUVÉ

METCOR INC.

800 BOUT. ARTHUR-SAUVE, ST-EUSTACHE, QC, J1R 5A8

Tél: 450-473-1884

Télécopieur / Fax administration: 450-491-2498

Télécopieur / Fax production: 450-491-0454

Certificat de Conformité Certificate of Compliance

BON DE TRAVAIL order	CHARGEMENT load
331089	1

CLIENT / customer 215
DART AEROSPACE
1270 ABERDEEN
HAWKESBURY

ON K8A 1K7

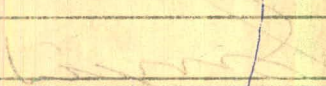
LIVRÉ À / shipped to:
DART AEROSPACE
1270 ABERDEEN
HAWKESBURY

ON K8A 1K7

COMMANDE DU CLIENT customer po	CLASSIFICATION PIÈCE part classification	MATÉRIEL material	MAÎTRE D'ŒUVRE prime contractor	PROGRAM
11328	N/A	Steel		
STRESS REL SAS AMS 27861 REV F EXIGENCE / requirement SPÉCIFICATIONS / specified TESTS EXÉCUTÉS / performed RÉSULTATS DE TESTS / results Visual				
SPECIFICATIONS DU PROCÉDÉ processing specifications				

QUANTITÉ quantity	POIDS weight	DESCRIPTION DES PIÈCES parts description
2	62	(2) D350-748-201 JOB 184480 D350-748-201
		1 NIL

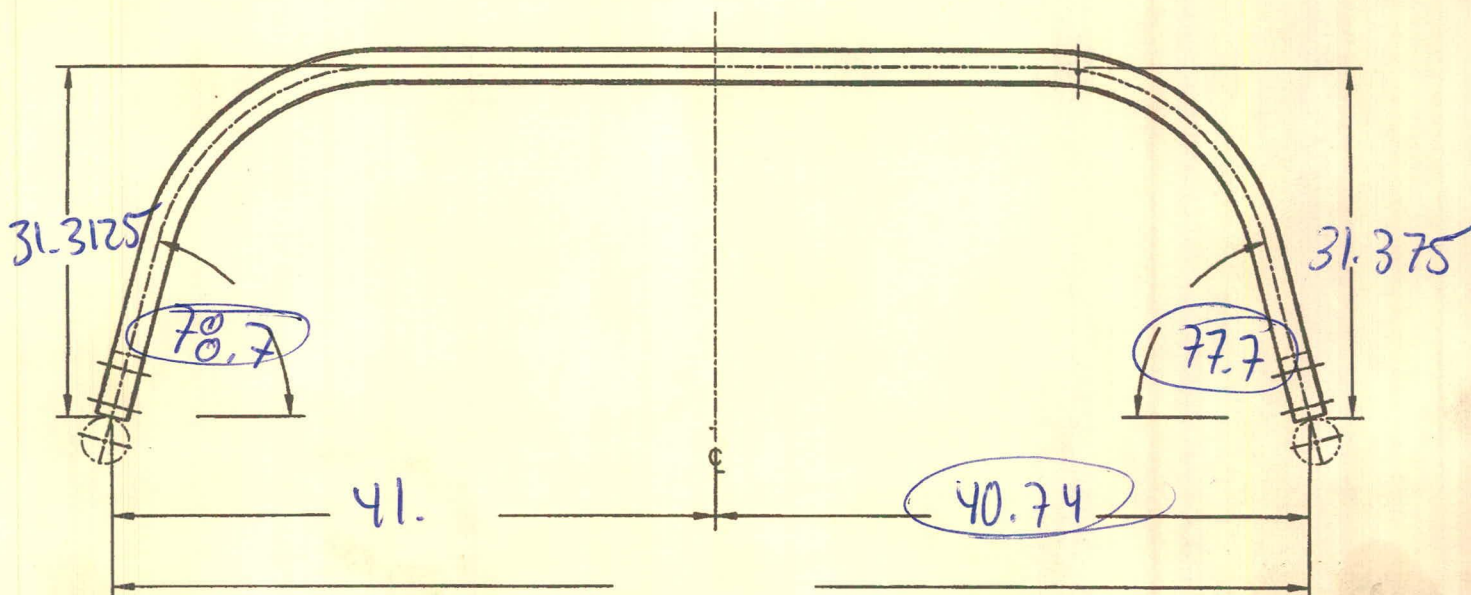
COMMENTAIRES / comments

APPROUVÉ par / Approved by: 	DATE: 2018-10-15
--	------------------

APPROUVÉ
DATE

DART AEROSPACE LTD		Work Order:	
Description: Crosstube High Aft (AS350/355)		Part Number:	D350-748-201
Inspection Dwg: D350-748-241 Rev: H			Page 1 of 1

Required Dimension	Min	Max
Height	31.10	31.60
1/2 Span	40.77	41.03
Angle	75	77
Total Span	81.54	82.06
Bending Passes	7	--
Crushing	--	8%
Twist	--	0.38



	Side A	Side B
Bending Passes		
Crushing		
Comments		

QC15 Inspection	
Date	

Rev	Date	Change	Revised by	Approved
A	07.02.06	New Issue	KJ/JM	
B	10.08.23	Dwg Rev updated	KJ	
C	12.04.16	Added bending, crushing & twist dimensions	KJ	
D	12.07.31	Dwg Rev updated	KJ	
E	13.02.27	Dwg Rev updated	KJ	
F	14.02.13	Crushing & twist dimensions revised	KJ	
G	14.11.10	Height dimension revised	KJ	
H	15.07.20	Crushing dimension revised	KJ	

Entered: _____ Date: _____



WORK ORDER NON-CONFORMANCE / ROUTE UPDATE

NCR No. _____

Route update only ☐

Job: _____ Part No. _____	DISPOSITION Rework ☐ Scrap ☒ Use-as-is ☐	DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Large Fab ☐ Cross tube ☒ Small Fab ☐ Finishing ☐ Eng. (Non-AW) ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Engineering ☐ Water Jet ☐ Supplier ☐ Quality ☐		
Date : <u>18/10/17</u>	Sequence #: <u>130</u>	QTY Affected : _____		MRB (QSI042) <u>INSP 12</u> <u>18/10/17</u> Completed By <u>18/10/17</u> Lead hand / Supervisor DAS 9 9-89 <u>18-10-30</u> QC / QA Coordinator DAS 9 9-89 <u>18-10-30</u>
Description Work Order Deviation Tube was over bent and was yielded in Eng. deflection rig to bring into tolerance.		Disposition Process will be approved by Eng testing. Acceptable to proceed proceed with remaining work steps pending Eng approval. scrap tube after testing.		
Root Cause Operator ☐ Manufacturing Process ☐ Equip/Tooling ☐ Handling/Preservation ☐ Material ☒ Product Improvement ☐ Process Improvement ☐ Human Factors ☐	FAULT CATEGORY ☐ Pressure/Forced ☒ Bending ☐ Crushing ☐ Cracks ☒ Crimp/Kink/Ripple/Wave/Twist ☐ Marks/Chatter ☐ Mislabeled ☐ Contamination ☐ Misaligned/off center ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Incomplete/Unclear Instructions ☐ Drill Holes ☐ Fit/Function ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain Direction ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set/Set-up ☐ Positioned Wrong ☐ Outside Tolerance ☐ Drawing ☐ Finish ☐ Part Lost/Missing ☐ Misread			
Other/Details: _____ _____ _____				



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2nd
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2nd
8

880

1000 1000 1000 1000

1000 1000 1000 1000



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

PURCHASE ORDER **PO041374**

Supplier: CAD002-VC
Cadorath Coating
2150 Logan Ave.
Winnipeg
MB
R2R 0J2 Canada
Phone: 204 633 9420
Fax: 204 633 8033

PO No: PO041374
PO Date: 10/18/18
Due Date: 10/31/18

Purchase Order
Revision:

Revision Date:

Ship-To Contact: Phone:

E-MAILED
OCT 19 2018

Ship To: 1270 Aberdeen Street
Hawkesbury
ON
K6A 1K7 Canada
Phone: 613-632-5200

Via: Ground

Pymt Terms: Net 30

Freight Terms:

Special Comments:

Items

Line Item	Job	Part	Description	Status	Account	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (CAD)	Extended Price
1	184476	D350-748-101	FWD Crosstube AS350 / AS355 : TC STC SH06-27 Issue 2, FAA STC SR02359NY 11/03/04, EASA STC EASA.10016903 Revision 2 10/09/03, BRAZIL 2009S04-04 09/04/06 Issue P/O: Stress relief at 375degree for 5hrs Magnetic Particle Inspect per ASTM E1444 Cad Plate per AMS-QQ-P-416B, Class 1, Type 2 Embrittle relief at 375 defree for 8 hrs, Chromate Treat C of C req'd serial # S117106	Firmed	-	10/31/18	1 pcs	0 pcs	1 pcs	\$805.00/pcs	\$805.00
	184479		serial # S117081	Firmed		10/31/18	1 pcs	0 pcs	1 pcs	\$805.00/pcs	\$805.00
	184478		serial # S117100	Firmed		10/31/18	1 pcs	0 pcs	1 pcs	\$805.00/pcs	\$805.00
Sub Total:							3	0	3		\$2,415.00



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

PURCHASE ORDER **PO041374**

Items											
Line Item	Job	Part	Description	Status	Account	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (CAD)	Extended Price
2	184480	D350-748-201	Aft Crosstube AS350 / AS355 : TC STC SH06-27 Issue 2, FAA STC SR02359NY 11/03/04, EASA STC EASA.10016903 Revision 2 10/09/03, BRAZIL 2009S04- 04 09/04/06 Issue P/O: Stress relief at 375degree for 5hrs Magnetic Particle Inspect per ASTM E1444 Cad Plate per AMS-QQ-P- 416B, Class 1, Type 2 Embrittle relief at 375 defree for 8 hrs, Chromate Treat C of C req'd serial # S117528	Firmed	-	10/31/18	1 pcs	0 pcs	1 pcs	\$805.00/pcs	\$805.00
	184483		serial # S117537	Firmed		10/31/18	1 pcs	0 pcs	1 pcs	\$805.00/pcs	\$805.00
Sub Total:							2	0	2		\$1,610.00

Grand Total: \$4,025.00

Order Notes

Procurement Quality Clauses
A005 right of entry
A012 chemical and physical test report
A016 personnel qualification
A017 raw material identification (as applicable)

A022 Apical Processing
A024 process certifications
A026 certification of material conformance

A041 quality management system
A042 dart notification by supplier
A043 retension of quality documents

A048 counterfeit parts avoidance, detection, mitigation and disposition program

A049 supplier awareness

Terms & Condition of Purchasing(Suppliers) and Procurement Quality Clauses are an integral part of our AS9100 requirements. To learn in detail, please visit www.dartaerospace.com for further explanation.

Plex 10/18/18 10:24 AM dart.lavoie.chantal

Packing Slip



Cadorath Coating

2150 Logan Avenue, Winnipeg, Manitoba R2R-0J2

Phone: (204) 633-9420 Fax: (204) 633-8033

INVOICE NUMBER:

S98011

Sold To:

Dart Aerospace Ltd.
1270 Aberdeen St.

Hawksbury, ON K6A 1K7

ShipTo:

Net 2% Interest Per Month charged on Overdue Accounts.

Any claims for shortages, overcharges, or damaged goods must be made within seven (7) days from receipt of goods.

Customer Order #: DateReceived:

PO041374

Oct-19-2018

Terms:

NET 30 DAYS

G.S.T. #:

10071 6547 RT0001

Ship Via:

Ship Date:

Oct-25-2018

Item #	Qty	P/N & Description
--------	-----	-------------------

1	1 EA	CROSSTUBE ✓ P/N d350-748-101 ✓	S/N S117106 ✓ W/O 187621
2	1 EA	CROSSTUBE ✓ P/N d350-748-101 ✓	S/N S117081 ✓ W/O 187622
3	1 EA	CROSSTUBE ✓ P/N d350-748-101 ✓	S/N S117100 ✓ W/O 187623
4	1 EA	CROSSTUBE ✓ P/N D350-748-201 ✓	S/N S117528 ✓ W/O 187624
5	1 EA	CROSSTUBE ✓ P/N D350-748-201 ✓	S/N S117537 ✓ W/O 187625

**CERTIFICATE OF
CONFORMANCE**

**CADORATH PLATING CO. LTD.
2150 LOGAN AVENUE
WINNIPEG, MANITOBA R2J-0J1**

DATE: Oct-25-2018

CONSIGNED TO: Dart Aerospace Ltd.
1270 Aberdeen St.
Hawksbury, ON K6A 1K7

W/O #: 187624

INVOICE #: 98011

**CONTRACT OR
PURCHASE ORDER #** PO041374 ✓

DESCRIPTION: CROSSTUBE

QTY

1 ✓

P/N # D350-748-201 ✓

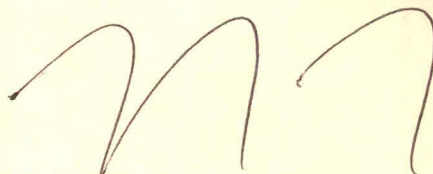
S/N # S117528 ✓

STRESS RELIEF BAKE HEAT CHART # 18-980. MPI IAW ASTM-E-1444. CADMIUM PLATE IAW AMS-QQ-P-416C TYPE 2 YELLOW CLASS 1. FINAL MPI IAW ASTM-E-1444. EMBRITTLE RELIEF BAKE HEAT CHART # 18-990.

DAS
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9-89

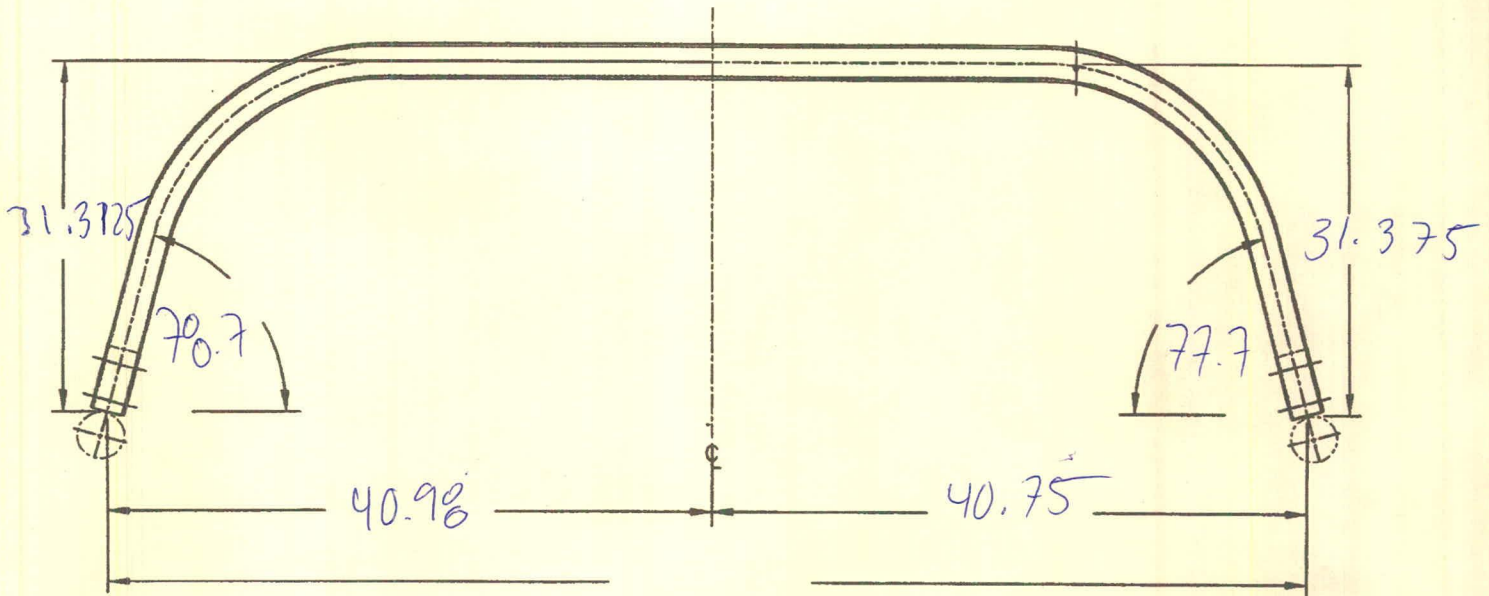
CERTIFICATE: I certify that the items indicated here on have been inspected and tested and conform to all specifications and requirements detailed on the contract or purchase order.

Approved Inspector: _____



DART AEROSPACE LTD	Work Order:	
Description: Crosstube High Aft (AS350/355)	Part Number:	D350-748-201
Inspection Dwg: D350-748-241 Rev: H		Page 1 of 1

Required Dimension	Min	Max
Height	31.10	31.60
1/2 Span	40.77	41.03
Angle	75	77
Total Span	81.54	82.06
Bending Passes	7	--
Crushing	--	8%
Twist	--	0.38



	Side A	Side B
Bending Passes		
Crushing		
Comments		

DAS
38
9-88

QC15 Inspection	
Date	OCT 26 2018

Rev	Date	Change	Revised by	Approved
A	07.02.06	New Issue	KJ/JM	
B	10.08.23	Dwg Rev updated	KJ	
C	12.04.16	Added bending, crushing & twist dimensions	KJ	
D	12.07.31	Dwg Rev updated	KJ	
E	13.02.27	Dwg Rev updated	KJ	
F	14.02.13	Crushing & twist dimensions revised	KJ	
G	14.11.10	Height dimension revised	KJ	
H	15.07.20	Crushing dimension revised	KJ	

[Handwritten signatures]



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

PURCHASE ORDER **PO041475**

Supplier: SKY002-VC
Skyservice
6120 Midfield Road
Mississauga
ON
L5P 1B1 Canada
Phone: 905-678-5636
Fax: 905-678-5841

PO No: PO041475
PO Date: 10/26/18
Due Date: 10/30/18
Purchase Order
Revision:
Revision Date:
Ship-To Contact: Phone:

Ship To: 1270 Aberdeen Street
Hawkesbury
ON
K6A 1K7 Canada
Phone: 613-632-5200

Via: Ground
Pymt Terms: Net 30
Freight Terms:
Special Comments:

Items											
Line Item	Job	Part	Description	Status	Account	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (CAD)	Extended Price
1	184178	D4464-041	Fuel Tank Assembly : Various STC's ISSUE P/O : LIQUID PENETRANT INSPECTION AS PER QSI 038 OR LPI AS PER ASTM 1417 LEVEL 2	Firmed	-	10/30/18	1 pcs	0 pcs	1 pcs	\$156.00/pcs	\$156.00
						1X OCT 30 2018					
2	184697	D212-664-101	Fwd Crosstube - High : TC STC SH01-9 Issue 3, FAA STC SR01298NY 09/01/08, EASA STC EASA.IM.R.S.01304 07/03/06, DGAC MEXICO STC IA-316/2015 15/06/17 *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE*** Liquid Penetrant Inspection as per QSI 038 LPI as per ASTM 1417 Level 2 Attach copy of NDT results to work order *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE*** Liquid Penetrant Inspection as per QSI 038 LPI as per ASTM 1417 Level 2 Attach copy of NDT results to work order	Firmed	-	10/30/18	1 pcs	0 pcs	1 pcs	\$75.00/pcs	\$75.00
						1X OCT 30 2018					
	184695			Firmed	-	10/30/18	1 pcs	0 pcs	1 pcs	\$75.00/pcs	\$75.00
						Sub Total:	2	0	2		\$150.00
3	183769	D212-664-201	Aft Crosstube - High : TC STC SH01-9 Issue 3, FAA STC SR01298NY 09/01/08, EASA STC EASA.IM.R.S.01304 07/03/06, DGAC MEXICO STC IA-316/2015 15/06/17 ***WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE.*** Issue P/O: LIQUID PENETRANT INSPECTION AS PER QSI 038 OR LPI AS PER ASTM 1417 LEVEL 2	Firmed	-	10/30/18	1 pcs	0 pcs	1 pcs	\$156.00/pcs	\$156.00
						1X OCT 30 2018					
	183770			Firmed	-	10/30/18	1 pcs	0 pcs	1 pcs	\$156.00/pcs	\$156.00
						1X OCT 30 2018					

Plex 10/29/18 8:56 AM dart.tsimiklis.chrisoula



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

PURCHASE ORDER **PO041475**

Items											
Line Item	Job	Part	Description	Status	Account	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (CAD)	Extended Price
Sub Total:							2	0	2		\$312.00
4	184479	D350-748-101	FWD Crosstube AS350 / AS355 : TC STC SH06-27 Issue 2, FAA STC SR02359NY 11/03/04, EASA STC EASA.10016903 Revision 2 10/09/03, BRAZIL 2009S04-04 09/04/06 Issue P/O: _____ Stress relief at 375degree for 5hrs Magnetic Particle Inspect per ASTM E1444 Cad Plate per AMS-QQ-P-416B, Class 1, Type 2 Embrittle relief at 375 defree for 8 hrs, Chromate Treat C of C req'd ISSUE P/O TO SKYSERVICE: _____	Firmed -		10/30/18	1 pcs	0 pcs	1 pcs	\$122.7272/pcs	\$122.73
	184476			Firmed -		10/30/18	1 pcs	0 pcs	1 pcs	\$122.7272/pcs	\$122.73
	184478			Firmed -		10/30/18	1 pcs	0 pcs	1 pcs	\$122.7272/pcs	\$122.73
Sub Total:							3	0	3		\$368.18
5	184480	D350-748-201	Aft Crosstube AS350 / AS355 : TC STC SH06-27 Issue 2, FAA STC SR02359NY 11/03/04, EASA STC EASA.10016903 Revision 2 10/09/03, BRAZIL 2009S04-04 09/04/06 ISSUE P/O TO SKYSERVICE: _____	Firmed -		10/30/18	1 pcs	0 pcs	1 pcs	\$122.7272/pcs	\$122.73
	184483			Firmed -		10/30/18	1 pcs	0 pcs	1 pcs	\$122.7272/pcs	\$122.73
Sub Total:							2	0	2		\$245.45
Grand Total:											\$1,231.64



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

PURCHASE ORDER PO041475

Order Notes

Procurement Quality Clauses

A005 right of entry
A012 chemical and physical test report
A016 personnel qualification
A017 raw material identification (as applicable)

A022 Apical Processing
A024 process certifications
A026 certification of material conformance

A041 quality management system
A042 dart notification by supplier
A043 retention of quality documents

A048 counterfeit parts avoidance, detection, mitigation and disposition program

A049 supplier awareness

Terms & Condition of Purchasing(Suppliers) and Procurement Quality Clauses are an integral part of our AS9100 requirements. To learn in detail, please visit www.dartaerospace.com for further explanation.

Plex 10/29/18 8:56 AM dart.tsimiklis.chrisoula

**skyservice****Work Order Traveler**

Sky Service F.B.O. Inc.

10105 Ryan Avenue, Dorval, Quebec, H9P 1A2

TCCA AMO 53-89 / EASA 145.7142 / BDA AMO 385

WO #: MWO37958	Customer: Dart Aerospace Ltd.	Dept: NDT YUL	Reference: PO041475
Descr:	PN:	S/N:	Qty: 1
Make:	Model:	Reg:	A/C S/N:
TSN:	CSN:	TSO:	

Task: **UNSCHEDULED**

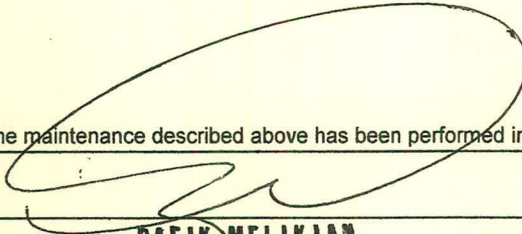
Sequence: 1

Work Required:**CARRY OUT NDT ON:**

- 1 FUEL TANK ASSY , P/N# D4464-041 , J/S# 184178 ✓
- 2 FWD CROSSTUBES , P/N# D212-664-101 , J/S# 184695 , 184697 ✓
- 2 AFT CROSSTUBES , P/N# D212-664-201 , J/S# 183770 , 183769 ✓
- 3 FWD CROSSTUBES , P/N# D350-748-101 , J/S# 184476 , 184478 , 184479 ✓
- 2 AFT CROSSTUBES , P/N# D350-748-201 , J/S# 184480 , 184483 ✓

Action Taken:						Date:	Initial/Stamp:
LPI C/O IAW ASTM E-1417 REV. 16						OCT 26 2018	 DOT-APP 20 53-89
NO CRACK FOUND							
PEN. ZL-56, MPO13600, CLEANER SKC-S MPO13923 , DEV. MPO11715 , UV LIGHT M-20142							
Description	Location	P/N	Qty	Batch	S/N Off	S/N On	

I certified that the maintenance described above has been performed in accordance with the applicable standard of airworthiness.

Signature: 	ACA/SCA Stamp 	Date: OCT 26 2018
Name: RAFIK MELIKIAN		

